WE CLAIM:

1. A sample chamber for a centrifugal permeameter for testing permeant conductivity of a porous sample, said sample chamber comprising:

a rigid outer sleeve;

a resilient inner sleeve mountable over said sample and within said rigid outer sleeve;

fluid inlet means for introducing fluid between said inner and outer sleeves;

sealing means acting between said inner and outer sleeves for maintaining said fluid therebetween;

a porous top member for mounting over a top face of said sample and supplying said permeant to said sample, said top being movable with said sample to maintain a radially outward permeant force on said sample as said sample is being spun in said centrifugal permeameter;

a permeant supply for supplying said permeant to said porous top; and,

a permeant accumulator for receiving and accumulating permeant which has passed through said sample.

2. The sample chamber of claim 1 further having a sensor for sensing changes in at least one of pressure and volume in said fluid between said inner and outer sleeves and sending a signal to a receiver indicative of said volume change during centrifuging.

3. The sample chamber of claim 1 having a sensor in said accumulator for determining an amount of said permeant which has permeated said sample and sending a signal to a receiver indicative of said amount during centrifuging.

4. The sample chamber of claim 1 further having a sensor in fluid communication with said permeant supply for sensing pressure exerted by said permeant on said sample and sending a signal to a receiver indicative of said exerted permeant pressure during centrifuging.

5. The sample chamber of claim 1 further having a sensor for determining a degree of sample consolidation exhibited by said sample during centrifuging and sending a signal to a receiver indicative of said degree of sample consolidation during centrifuging.

6. The sample chamber of claim 2 further having a sensor in said accumulator for determining an amount of said permeant which has permeated said sample and sending a signal to said receiver indicative of said amount during centrifuging.

7. The sample chamber of claims 2 and 3 further having a sensor in fluid communication with said permeant supply for sensing pressure exerted by said permeant on said sample and sending a signal to said receiver indicative of said exerted permeant pressure during centrifuging.

8. The sample chamber of claim 6 further having a sensor in fluid communication with said permeant supply for sensing pressure exerted by said permeant on said sample and sending a signal to said receiver indicative of said exerted permeant pressure during centrifuging.

9. The sample chamber of claim 8 further having a sensor for determining a degree of sample consolidation exhibited by said sample during centrifuging and sending a signal to said receiver indicative of said degree of sample consolidation during centrifuging.

10. The sample chamber of claim 9 further having comparing and adjusting means for comparing said changes in said at least one of pressure and volume of said fluid between said inner and outer sleeves to said pressure exerted by said permeant on said sample and adjusting said at least one of pressure and volume of said fluid between said inner and outer sleeves by a degree sufficient to restrict movement of said permeant to said porous sample.

11. The sample chamber of claim1, wherein the rigid outer sleeve is comprised of one of plastic, metal and glass.

12. The sample chamber of claim 1, wherein the resilient inner sleeve is comprised of latex.

13. The sample chamber of claim 1, wherein the sealing means are o-ring sealing means

14. The sample chamber of claim 1, wherein the porous top member comprises a top cap and an underlying porous material having a permeant conductivity greater than that of the sample.